Report for 2003WY13B: Conveyance Losses and Travel Times of Reservoir Releases Along the Bear River from Woodruff Narrows Reservoir to Cokeville Wyoming

There are no reported publications resulting from this project.

Report Follows

Abstract:
This study will investigate conveyance losses on the Bear River between Woodruff Narrows Reservoir, WY and Cokeville, WY. There are three main reasons for this study. First, conveyance loss information may allow irrigators near Cokeville WY to use Woodruff Narrows storage water. Second, it will provide better understanding of conveyance losses and return flow timing and thus, allow downstream Wyoming irrigators to better plan for utilizing reservoir releases. Third, information obtained in this study will be useful in future decision-making related to the development of a wildlife refuge that has been approved for this part of Wyoming. Stream flow data and the hydrologic budget approach will be used to determine conveyance losses for the Bear River. Through this analysis, major mechanisms influencing flow will be determined and quantified. The method to be used requires the comparison of quantities for inflow and outflow in order to determine conveyance losses. These measurements will be obtained from USGS stream gages, existing recorders on diversion in Wyoming and Utah and from continuous stage recorders to be installed over this reach of the Bear River.

Current Project Status:
An overview of project goals and procedures was presented to Bear River Basin Advisory Group, Kemmerer Wyoming in July 2003. With assistance from Advisory Group members (*e.g.* Jade Henderson), all major diversions and tributaries gauging information was obtained and analyzed for prior water years. A preliminary water budget analysis on these years indicated that additional gages were needed to be installed along the Bear River to account for return flows between the major diversions. Four additional gages have been installed and collection of data is ongoing. In addition, to better perform the water budget analysis, we have added telemetry to the newly installed gages and all major diversions along the study stretch of the Bear River. Telemetry installation was provided by the US Bureau of Reclamation and was an outcome of a January 2004 meeting between personnel from WY State Engineer's Office, Utah Division of Water Rights and the interstate Compact Commission's engineer-manager. With telemetry capabilities, we plan to develop a real-time water budget analysis approach which may be useful for decision makers and irrigators when managing water supply. Utah Division of Water Rights has indicated they want to participate in the study and help model Woodruff Narrows Reservoir's lag times, return flows, etc.
The ongoing drought may cause some difficulties for this study. Last year there was insufficient water for reservoir releases necessary to obtain incremental loss measurements. If this continues in 2004, alternative methods to estimate losses other than those originally proposed will need to be explored.
Overall the project is on track in both research objectives and training potential. A graduate student is being supported with project funding and is receiving training related to water resources through academic course work, research project activities and opportunities to interact with State agency personnel and irrigators.

Meetings/Presentations:
"Conveyance Losses on the Bear River", Bear River Advisory Group, Kemmer Wyoming, July 2003.
"Conveyance Losses on the Bear River" Wyoming State Engineers office, Utah State Engineers Office, Cokeville Wyoming, January 2004.

Student Support:
William Kunz, MS Civil Engineering, University of Wyoming